

GOLF PUTTER AND PUTTER HEAD

CROSS REFERENCE TO RELATED APPLICATION

I hereby certify that this paper is being deposited with the United States Postal Service using "Express Mail" Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to "Assistant Commissioner for Patents, P.O. Box 2327, Arlington, VA 22202."
Name: Sheri Padgett
Signature: Sheri Padgett

This is a continuation-in-part of application Ser. No. 09/392,155, filed on September 8, 1999, now abandoned.

FIELD OF THE INVENTION

The present invention generally relates to a golf putter and a golf putter head. The present invention more specifically relates to a golf putter head that provides improved distance and directional control of the golf ball and better assists the user with proper alignment of the putter face to the intended path of the golf ball.

BACKGROUND OF THE INVENTION

Putting is one of the most important elements of the game of golf. In fact, for an eighteen hole golf course with a par of 72 strokes, 36 strokes are attributed to putting. The putter, therefore, is the most often used club in a player's golf bag, usually by a wide margin. The driver is another club generally considered to be very important, but it is rarely used more than 14 times per round. For top players, the ability to putt well is often what distinguishes the best players from the rest, and for beginners, improved putting is often the fastest way to decrease one's golf scores.

The act of putting is comprised of several key elements. First, the putter must be accurately aligned, with the putter face perpendicular to the intended ball path, so that the ball will travel along the intended path when struck. Secondly, a pendulum type stroke must be made so that the putter maintains proper

10010999-100201

alignment with the intended path and imparts sufficient speed to the ball that it travels the proper distance. Finally, the putter must strike the ball so that it quickly begins to roll true on the intended path and with a minimum of bouncing or skidding. Excessive bouncing or skidding not only affects the accuracy of the putt but the distance as well.

Naturally, the odds of making a putt are reduced dramatically if the ball does not travel in the intended direction, regardless of the quality of the stroke. Misalignment of the putter by only 1 degree for a putt of 10 feet results in a 2 inch error at the hole, easily enough to cause a miss. The remaining elements of putting are fruitless if the putter is not aimed properly.

Many putters provide some arrangement of lines or markings on the top of the putter head that are meant to assist in the alignment of the putter face. The effectiveness of these alignment aids is limited, however, because the only intersection between the vertical or positively lofted face of a standard putter and a spherical golf ball is a single point of contact. This limited visual guide makes it difficult to easily square the alignment aids with the ball and its intended path of travel.

Once the putter is aligned and a proper stroke is made, the putter must strike the ball in a manner that produces overspin as quickly as possible. The most effective means of doing so is to strike the ball above its equator, as expert pool players do when striking a cue ball. Conventional putters, however, strike the ball at or below its equator. This is a result of the conventional putter's face being flat and having no angle or having a slightly positive angle, such that the bottom edge of the putter face protrudes beyond the top edge of the putter face. A vertical putter face having no angle is said to have zero loft and a putter face having a positive angle is said to have positive loft. With such lofts it is not feasible to strike a ball significantly above its equator, and thus greater skidding will occur before overspin is generated.

The objective of this putter is to overcome the above-mentioned deficiencies of conventional putters by aiding alignment with the intended ball path and striking a golf ball above its equator for the purpose of creating overspin as soon as possible.

SUMMARY OF INVENTION

The present invention is of a golf putter and putter head that assist the user with proper alignment of the putter face to the intended path of a golf ball and, upon impact with a golf ball, provide immediate distance and directional control of the golf ball. The golf putter and putter head have a negatively angled putter face that, upon the downswing of the golf putter, strikes a golf ball above its equator, imparting a more immediate forward spin to the golf ball and thus, minimizing the bouncing or skidding of the ball, which can greatly affect the distance and accuracy of the putt. As a result of the negatively angled putter face, an upper portion of the putter head overlaps the golf ball when the putter head is adjacent to the golf ball during the initial set up of the putt. This overlap of the ball by the putter head creates a perceived line of intersection along the top of the golf ball, which acts as a visual reference when aligning the putter face with the intended path of the ball. The effectiveness of this alignment aid can be improved by adding markings along the top of the putter head. For significant overlap of the golf ball by the putter head, a second embodiment of the putter head has a putter face height that is taller than a conventional putter of approximately one inch and is preferably one and a half to two inches tall. To further extend the overlap beyond the point achieved with the desired angle and height of the putter face, a third embodiment of the putter head comprises an overhang that extends outwardly from the top edge of the putter face. In a fourth embodiment of the present invention, a putter head having a vertical or positively lofted face includes an overhang that extends outwardly from the top edge of the putter face to provide a line of intersection for aiding a golfer with proper

alignment of the putter face in relationship to the golf ball and its intended path. Alternatively, for each of the third and fourth embodiments described above, the overhang is instead an integral part of the hosel, which is the part of the putter head that connects a putter shaft to the putter head body. Just as with the putter face overhang, the hosel overhang is above the putter face and extends outwardly past the putter face to provide a line of intersection for aiding a golfer with proper alignment of the putter face in relationship to the golf ball and its intended path.

BRIEF DESCRIPTION OF DRAWINGS

Figure 1 is a side view of a first embodiment of the putter head behind and in contact with a golf ball.

Figure 2 is a top view of the putter head and golf ball shown in Figure 1.

Figure 3 is a side view of a second embodiment of the putter head behind and in contact with a golf ball.

Figure 4 is a top view of the putter head and golf ball shown in Figure 3.

Figure 5 is a side view of a third embodiment of the putter head behind and in contact with a golf ball.

Figure 6 is a top view of the putter head and golf ball shown in Figure 5.

Figure 7 is a front perspective view of the putter head shown in Figures 3 and 4, the putter head further including a shaft attached thereto.

Figure 8 is a front perspective view of the putter head shown in Figures 5 and 6, the putter head further including a shaft attached thereto.

Figure 9 is a front view of the putter head shown in Figure 8.

Figure 10 is a front perspective view of a fourth embodiment of the putter head.

Figure 11 is a side view of the putter head of Figure 10 shown without a shaft and behind and in contact with a golf ball.

Figure 12 is a top view of the putter head and golf ball shown in Figure 11.

Figure 13 is a rear perspective view of a fifth embodiment of the putter head.

Figure 14 is a rear view of the putter head shown in Figure 13. The putter head is shown addressing a golf ball, which is not part of the claimed invention.

Figure 15 is a side view of the putter head and golf ball shown in Figure 14.

Figure 16 is a top view of the putter head and golf ball shown in Figure 14.

Figure 17 is a front view of the putter head and golf ball shown in Figure. The golf ball is not considered part of the claimed invention and in this figure is shown in phantom lines so as not to hinder the showing of the claimed invention, the putter head.

DETAILED DESCRIPTION OF THE INVENTION

Beginning with Figures 1 and 2, a first embodiment of the putter head of the present invention is shown. The putter head 10 has a toe portion 12, a heel portion 14, a rear portion 16, and a negatively angled face 18, such that the top edge 20 of the putter face 18 is more forwardly projected than the bottom edge 22 of the putter face 18. A putter face with the slightest negative angle will

contact a golf ball above its center or equator and impart a forward spin to the golf ball more quickly than will a putter with a flat or positively angled face, which contacts a golf ball at or below its equator, respectively. Thus, a negatively angled putter face reduces the frictional forces hindering the ball as it begins its translational movement along the green, causing the rotational speed of the ball to more quickly match the translational speed of the ball and lessening frictional effects, such as skidding and bouncing.

There is a relationship between the angle of the putter face 18 and the distance above the equator at which the putter contacts the ball 24 at impact. Given that the putter face 18 is of sufficient height for a putter to contact the ball 24 as high above the equator as is possible for a given angle, a more negatively angled putter face 18 will contact a golf ball at a higher distance above its equator thus, imparting greater overspin to the ball 24. At an optimum angle, the putter face strikes the ball at a point above its center to impart optimal overspin to the ball so as to eliminate the initial frictional forces that result in sliding or skipping of the ball and otherwise prevent the golf ball from experiencing a true roll from the moment of contact with the putter face. As the United States Golf Association's (USGA) Rules of Golf dictate that a putter face can be angled no more than 15 degrees, the putter head 10 of the present invention preferably has a negatively angled face 18 in the range of 10 to 15 degrees. This range provides enough overspin to be a significant improvement over putter heads with a flat or positively angled face, while still within the regulated design specifications for a golf putter, as dictated by the USGA.

Like the vertical contact point of a golf ball with the putter face 18, the horizontal distance between the top edge 20 and the bottom edge 22 of the putter face 18 is dependent on the degree with which the putter face 18 is angled. As the negative angle of the putter face 18 increases so does the horizontal distance between the putter's top and bottom edges 20 and 22. When the putter head 10 is aligned directly behind the golf ball 24, as shown in Figures 1 and 2, the angling of the putter face 18 overlaps the golf ball 24 to a certain

extent. The recession of the putter face 18 allows the user to position the base of the putter head 10 adjacent to the golf ball 24, while creating an overlap with the upper portion of the putter head 10. Of course, a more negatively angled face provides greater overlap between the putter head 10 and the golf ball 24 than does a less negatively angled face.

With a putter of zero, negative or positive loft, the only physical intersection between the putter face and the golf ball is a single point of contact. This single point of contact is of little assistance in securing proper alignment of the putter with the golf ball and its intended path. With the negatively angled putter face 10, however, the overlap of the ball 24 by the putter face 18, caused by the negative angle, also creates a perceived line of intersection 26. As can be seen in Figure 2, this line of intersection 26 provides a much improved visual reference when aligning the putter face 18 with a golf ball 24 and its intended path. When the putter face is properly aligned with the intended path of the ball, as seen in Figure 2, the visible portion of the ball appears symmetrical with respect to the frame of reference established by the intended ball path. When the putter face is not properly aligned with the intended path of the golf ball, the visible portion of the ball appears asymmetrical with respect to the frame of reference established by the intended ball path.

Figures 1 and 2 also depict the putter head 10 as having a curved bottom 28 and a hosel 30 for receiving a putter shaft.

A second embodiment of the putter head can be seen in Figures 3-4 and 7 and is the same as the first embodiment, except that the first embodiment is a putter head 10 having a putter face 18 of a standard or conventional height, such as approximately one inch, and the second embodiment is a putter head 32 having a taller putter face 34 than that of a standard putter, the height of the putter face 34 preferably in the range of one and one-half to two inches. As stated previously, the putter face 34 must be of the necessary height for the

putter to contact the ball 24 as high above its equator as is possible for a given angle. For putter face angles greater than -10 degrees, the putter face of a conventional height will strike the ball at a point lower than the maximum height achievable for a given angle. A greater putter face height, therefore, is required for the putter to strike the ball at the maximum height above the ball's equator for a given angle greater than -10 degrees.

Additionally, as the height of the putter face 34 increases, the amount of overlap of the golf ball 24 increases and the perceived line of intersection 36 becomes more prominent. In comparison, the putter head 10 of Figures 1-2 and the putter head 32 of Figures 3-4 have a putter face of the same angle, but the putter with the taller face 34 overlaps a greater percentage of the ball 24 and makes for a better visual reference for alignment purposes. The putter face angle and height can be of any combination to provide for the desired contact point of the golf ball 24 and the desired overlap of the golf ball 24 by the putter face 34, which can be minimal or up to one-half the diameter of the golf ball 24. For example, the putter face 34 with a less prominent negative angle can be increased in height to achieve the same overlap created by a putter face 18 of standard height and having a more prominent negative angle along its face 18. Preferably, the height and angle of the putter face 34 are such that the putter head provides overlap of one-tenth to one-half inch of the golf ball diameter. A putter face having a height of one and one-half to two inches and having an angle within the range of -10 to -15 degrees will provide overlap within the preferred range of one-tenth to one-half inch of the golf ball diameter.

In Figure 7, the putter head 32 is further shown to include a shaft 37 extending upward from the top of the putter head 32.

Figures 5, 6, and 8 show a third embodiment of the putter head of the present invention. This particular embodiment is a variant of the putter heads 10, 32 described above and shown in Figures 1-4 and 7. In addition to the putter

head 38 having toe, heel and rear portions 40, 42, 44 and a negatively angled putter face 48, the top portion of the putter head 38 has an overhang 46, which extends outwardly from the top edge 50 of the putter face 48. The overhang 46 enhances the perceived line of intersection 52 created by the overlap of the putter head 38 and the golf ball 24. For example, when the desired angle and/or height of the putter face 48 are such that the overlap is minimal or less than desired, the golfer will benefit from the extended overlap created by the overhang 46. In comparison, putter head 32 of Figures 3-4 and 7 and putter head 38 of Figures 5-6 and 8 have a putter face of the same angle and height, but putter head 38, which further includes overhang 46, overlaps a greater percentage of the ball 24 and makes for an even better visual reference for alignment purposes.

Any amount of overhang 46 may be used to achieve the desired overlap of the ball 24; however, as the overhang 46 extends further outward, the height of the putter face 48 must increase so as to prevent the overhang 46 from interfering with the putter face striking the golf ball 24 during the down swing of a putt. Of course, the need for the height of the putter face 48 to increase as the overhang 46 increases diminishes once the putter face height is just beyond that of the golf ball 24. For all practical purposes, the overhang 46 is preferably not more than three-tenths of an inch in width.

With the addition of an overhang, the height of the putter face becomes less of an issue with regards to the amount of overlap of the golf ball. A putter face 48 having an overhang 46 and being angled within a preferred range of -10 to -15 degrees can have a height less than that of a negatively angled putter face 34 having no overhang and still provide the same, if not more, coverage of the golf ball. Therefore, the preferred height of a putter face with an overhang can be within the broadened range of one to two inches for the preferred coverage of one-tenth to one-half inch of the golf ball diameter, keeping in mind that there is a minimum height for a given overhang that escapes the interference issue described above. Furthermore, each of the negatively angled putter face

48, the extended overhang 46, and the height of the putter face 48 can be used conjunctively and to any degree to create the desired or optimal combination of directional control (contact point of the ball) and visual reference (overlap of the ball).

Figures 5 and 8 also depict the putter head 38 as having a curved bottom 54 and a hosel 56 for receiving a putter shaft 57, which is shown only in Figures 8-9

A fourth embodiment of the present invention can be seen in Figures 10-12, which display a putter head 58 having toe, heel and rear portions 60, 62, 64, a vertical putter face 66 of zero loft, and an overhang 68 that extends outwardly from the top edge 70 of the vertical putter face 66. Alternatively, the putter head 58 may have a positively lofted face from which the overhang 68 extends. As the zero or positively lofted face 66 produces no overlap, the amount of overlap created is solely a result of the width of the overhang 68. Naturally, less overlap will be created for a face of zero or positive loft versus a face of negative loft given a particular amount of overhang. As a result, a wider overhang 68 is required to produce the same overlap with a zero or positively lofted face 66 that would be created by a negatively angled face. The amount of possible overlap of the ball 24 by the putter head 58 is determined by the width of the overhang 68 and the height of the putter face 66, as a minimum height is required for a given overhang width so that the overhang does not interfere with the putter face striking the ball. Provided that the minimum height for a given overhang is met, any putter face height may be combined with any overhang width to create the desired amount of overlap of the ball 24 by the putter face 66. Preferably, the height of the putter face 66 and the width of the overhang 68 are such that the putter face 66 overlaps one-tenth inch to one-half inch of the golf ball 24. The overhang 68 extending from vertical putter face 66 is preferably one-tenth to one-half inch in width so as to create one-tenth to one-half inch coverage of the ball 24. Naturally, the overhang of a putter face having a positive loft must go beyond

24. Naturally, the overhang of a putter face having a positive loft must go beyond the range of one-tenth to one-half inch in width to provide the same overlap of one-tenth to one-half inch of a golf ball's diameter.

Figures 10 -12 also depict the putter head 58 as having a curved bottom 74 and a hosel 76 for receiving a putter shaft 78, which is shown only in Figure 10.

Finally, a fifth embodiment of the present invention can be seen in Figures 13-17, which display a putter head 100 having a putter head body 102 with toe, heel and rear portions 104, 106, 108, with a vertical putter face 110 of zero loft, and with upper and lower surfaces 112, 114, and said putter head also having a hosel 116 that extends upwardly from the upper surface 112 of the putter head body 102. Alternatively, the putter head 58 may have a positively lofted face.

The hosel 116 of the present invention is bent at multiple angles, preferably multiple right angles, to create a bar or overhang 118 that protrudes past the putter face 110 and extends along the length of the putter head body 102 for at least the diameter of the golf ball. The hosel overhang 118 overlaps the golf ball to create a perceived line of intersection along the top of the golf ball, which acts as a visual reference when aligning the putter face 110 with the intended path of the ball. The hosel 116 comprises a base portion 120, a top portion 126 and two intermediate portions 122, 124 therebetween. The base portion 120 extends upwardly from and perpendicularly to the upper surface 112 of the putter head body 102 for a predetermined distance. A forward bend 128 of 90 degrees transitions the base portion 120 into the first intermediate portion 122 that extends perpendicular to the putter face 110 to a predetermined distance beyond the putter face 110. This distance determines the amount of overhang 118 created by the second intermediate section 124 extending therefrom at a second 90 degree bend 130 (lateral bend in the direction of the heel side of the putter head body). The second intermediate portion 124 is

elevated above the point of contact of the putter face and the golf ball and extends longitudinally along the length of the putter head body 102 from the toe 104 to the heel 106 and in parallel with the putter face 110 and upper surface 112. Near the heel 106 of the putter head body 102, the second intermediate portion 124 transitions to the top portion 126 through a third and upward bend 132 of 90 degrees and extends upwardly from and perpendicularly to the upper surface 112. The three bends 128, 130, 132 incorporated into the hosel 116 are described above as 90 degree bends. Although 90 degree bends are preferred, the bends may be of any working angle. The base and top portions 120, 126 of the hosel 116 can extend from the upper surface 112 other than perpendicularly, and the first intermediate portion 122 can extend other than perpendicular to the putter face 110, but the second intermediate portion 124 must always extend parallel to the putter face 110 and upper surface 112 of the putter head body 102 for properly assisting the alignment of the putter face 110 with the intended path of the ball. An alternative to the hosel 116 with multiple bends is a standard hosel with an overhang or bar member attached horizontally thereto.

The top portion 126 of the hosel 116 includes at its distal end a shaft socket 134 for connecting a putter shaft (not shown) to the putter head 100. The shaft socket 134 is angled to create the desired lie angle between the putter head 100 and the shaft. The lie angle in Figures 13-17 is shown as 20 degrees, but could be customized to be of any angle suitable for the individual user.

The putter head dimensions can be of any combination of numerical values. The combined dimensions of the hosel 116, however, must create an overhang 118 that provides the desired coverage of the ball, which is preferably in the range of one-tenth to one-half inch of the ball. The amount of possible overlap of the ball by the putter head is determined by the width of the overhang 118. Naturally, with a putter face having a positive loft, the overhang must go beyond the range of one-tenth to one-half inch in width to provide the same

overlap of one-tenth to one-half inch of a golf ball's diameter. The same applies to an overhang that begins behind the top edge of the putter face.

One example of the putter head dimensions is as follows: the vertical putter face 110 is 1 inch tall; the height of the overhang 118 from the ground to the underside of the overhang is 1 $\frac{3}{4}$ inches; the height of the overhang 118 itself is $\frac{3}{8}$ inch; the width of the overhang 118 or second intermediate portion 124 is $\frac{1}{4}$ inch; the width of the first intermediate portion 122 is $\frac{1}{4}$ inch; overhang 118 protrudes $\frac{1}{4}$ inch past putter face 110; and overlap of the golf ball is $\frac{1}{4}$ inch.

The hosel 116 is preferably an integral part of the putter head 100. It can, however, be a separate component that is affixed to or into the upper surface 112 of the putter head body 102.

The overhang included in the third, fourth and fifth embodiments described above may be an integral part of the putter head or alternatively, may be a separate piece that is permanently or removably attached to the putter head. Each of the overhangs 46 and 68 may extend upwardly, as well as outwardly, to provide extra clearance to prevent the overhang from contacting the ball. As seen in Figures 5, 8, 10-11, only the bottom of the overhang needs to be upwardly angled to provide the extra clearance. Also, the overhang is shown in Figures 6, 8-10 and 12 to extend along the entire length of the putter face, but the overhang can be of any length provided that it is long enough and properly positioned along the putter face to provide overlap of the golf ball.

For any of the putter head embodiments described herein, the effectiveness as alignment aids of the negatively angled face and the overhang can be further enhanced by adding to the top of the putter head lines that are parallel to the target line. For example, lines 80, 82 or other markings along the top of the putter head and perpendicular to the top edge of the putter head can be spaced in a manner that they visually intersect with the periphery of the golf

ball at each the left and right sides of the perceived line of intersection, if the putter face is properly aligned with the golf ball and its intended path. This position of the lines 80, 82 in relationship to the golf ball will not be achieved if the putter face is not perpendicular to the intended ball path and, in addition to the asymmetrical coverage of the ball by the putter head, will prompt the user to realign the putter face. An additional marking (not shown) can be equally positioned between the left and right marks, coinciding with the intended ball path if the putter face is aligned properly. Refer to Figure 12 for the proper alignment of the markings 80, 82 with the golf ball. Alternatively, the markings can be a series of small dots 84 or other markings that partially (Figure 6) or completely (Figure 4) outline the continued periphery of the golf ball hidden by the putter head given that the putter face is perpendicular to the intended path of the ball. The visual reference markings 80-84 may be somehow be printed, machined or formed along the putter head.

Any of the putter heads and their components described above and depicted in Figures 1-17, may be constructed of any suitable materials, such as alloy metals or composite materials, and may be of any suitable size, shape, or design that is accepted by the USGA. Additionally, any portion below the contact point of the putter heads disclosed herein may be removed or hollowed out to compensate for the added weight that may result from the angled putter face, the taller putter face and putter head, and/or the overhang. Some embodiments of the putter head are shown herein to have a slightly curved bottom and others a flat bottom. Alternatively, any of the putter heads may have a flat, curved or other shaped bottom. The putter head body attached to the putter head hosel can be of any putter head design.

A golf putter of the present invention comprises a putter head of the presented embodiments, an elongated shaft extending from the putter head, and one or more grips along the length of the club shaft.

Although, the present invention has been described in terms of certain specific embodiments, it is to be understood that various changes and modifications may be made without departing from the scope of the invention. The scope of the present invention is not to be limited by the detailed description of the preferred embodiments but, rather, is to be defined by the claims appended below.